Advanced Card Systems Limited

Product and Service Guide

Version 3.9

06-22-2005

Unit 2910-2913, 29/F, The Center, 99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873 Fax: +852 2796 1286 Email: info@acs.com.hk Website: www.acs.com.hk

Contents

1. Company Background 3
2. ACS Products 4
2.1 Contact Smart Cards and Smart Card Operating Systems 5
2.1.1 ACOS2 Microprocessor Card 5
2.1.2 ACOS3 Microprocessor Card 6
2.2 PC-Linked Readers 7
2.2.1 ACR30 Smart Card Reader/Writer 7
2.2.2 ACR30D Dual Interface Smart Card Reader/Writer 8
2.2.3 ACT30 SIMTracker (Plug-in Card Reader) 9
2.2.4 ACR38 Smart Card Reader/Writer 10
2.2.5 ACR38F Floppy Bay Smart Card Reader 11
2.2.6 ACR38K Keyboard with Built-in Smart Card Reader 12
2.2.7 ACR38T SIMTracker II (Plug-in Card Reader) 13
2.2.8 ACR38DT DualKey 14
2.2.9 ACR38ET DualKey2 15
2.2.10 ACR91 PCMCIA Type II Smart Card Reader/Writer 16
2.2.11 AC1030 / AC1038 / AC1080 Reader Chipset 17
2.2.12 ACM30 / ACM38 / ACM80 - ACR30 / ACR38 / ACR80 Reader Modules 18
2.2.13 AC-Kit - Smart Card Development Kit 19
2.2.14 SDK-ACR38 – ACR38 Smart Card Reader Software Development Kit 20
2.3 Smart Card Balance Readers 21
2.3.1 ABR06BS / ABR08LS/ ABR10RS– ACS Balance Readers 21
2.3.2 APG08LS - Dynamic Password Generator 22
2.3.3 ABR Balance Reader Sample Pack 23
2.4 Smart Card / Finger Print Readers 24
2.4.1 ADT60 BioSIMKey Fingerprint Scanner and Plug-in Smart Card Reader 24
2.4.2 AET60 BioCARDKey Fingerprint Scanner and Smart Card Reader 25
2.4.3 AET63 BioTRUSTKey Fingerprint Scanner and Smart Card Reader 26
2.4.4 SDK-ADT60 – ADT60 BioSIMKey Software Development Kit (SDK) 27
2.4.5 SDK-AET60 - AET60 BioCARDKey Software Development Kit (SDK) 28
2.4.6 SDK-AET63 - AET63 BioTRUSTKey Software Development Kit (SDK) 29
2.5 Smart Card Readers with PIN-pad 30
2.5.1 ACR88 Handheld Portable Smart Card Reader 30
2.5.2 ACR80 PIN-pad reader 31
2.5.3 SDK-ACR80 - Software Development Kit (SDK) 32
2.6 Contactless Readers 33
2.6.1 ACR120 Contactless Smart Card Reader/Writer 33
2.6.2 SDK-ACR120 – ACR120 Contactless Smart Card Development Kit 34
2.7 Physical Access Control 35
2.7.1 ACM133- Fingerprint Controller Module 35
2.7.2 EVK- ACM133 Evaluation Kit 36
2.8 GSM Management Tools 37
2.8.1 SIMmate 37
2.8.2 SIMmate Online 39
2.8.3 SIMC01 - SIMcopier 40
2.9 Others 41
2.9.1 ACS Smart Card Connector 41
2.9.2 Other Smart Cards 42
2.9.3 Rewritable Printers 43
3. ACS services 44
3.1 Product Customization 44
3.2 Consultancy and Training 45

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

1. Company Background

Advanced Card Systems Ltd. (ACS), a listed company on the Hong Kong Stock Exchange, is a leading developer and producer of smart cards, card readers and security hardware such as biometric devices and logical and physical access control devices. ACS has won its reputation as a supplier of quality products at reasonable prices. Its products are sold to over 60 countries in the world. It is ranked in Year 2003 by Frost and Sullivan as the world's 4th largest supplier of smart card readers and is ranked first among Asian suppliers. ACS is specialized in developing customized products and has co-operated with several global players in developing such products.

Founded in 1995, Advanced Card Systems Ltd. (ACS) started its business as a developer of smart card and card reader technologies. Then its business has been extended to security hardware including biometric devices and logical and physical access control devices.

ACS always endeavours to keep itself abreast of technology development in its core products and services. It is the world's first company to introduce the PC/SC compliant USB smart card reader, back in 1999 in CeBIT in Hannover. It is also the world's first company to have a reader based on a single-ASIC solution compliant to EMV level I (Europay, Mastercard, Visa) standard.

ACS products are sold to over 60 countries in the world. In particular, its smart card readers have been qualified and used by the world's top six smart card suppliers. ACS won the "Growth Strategy Leadership Award" by Frost & Sullivan for its outstanding performance in the world smart card reader market in 2002.

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2. ACS Products

ACS products are divided into eight main product lines:

1. Contact Smart Cards and Smart Card Operating Systems
2. PC-linked Readers
3. Smart Card Balance Readers
4. Smart Card / Finger Print Readers
5. Smart Card Readers with Pin-pad
6. Contactless Readers
7. Physical Access Control Devices
8. GSM Management Tools

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.1 Contact Smart Cards and Smart Card Operating Systems
2.1.1 ACOS2 Microprocessor Card

ACOS2
[smart card format]

ACOS2
[plug-in card format]

Suitable to be used:
- In payment systems
- In secure access control
- As identity card
- In customer loyalty program
- As campus card, clubs card, etc.

Supplied as:
- License of software
- Wafer
- Module
- Card

Features
- EEPROM for user data: 1K, 8K
- Compliant with ISO7816-1/2/3, T=0
- DES (and triple DES optional) and MAC capability for very high security level
- Mutual authentication with random numbers and dedicated key pair
- Five secret codes + Issuer Code + Pin to selectively enable access to data stored in card and to features and functions provided by the card, e.g., the READ and WRITE commands
- Issuer definable file management for convenient and efficient memory management
- Dedicated data structure for payment applications with CREDIT, DEBIT, INQUIRE ACCOUNT commands for secure transaction processing

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.1.2 ACOS3 Microprocessor Card

Suitable to be used:

- In payment systems
- In secure access control
- As identity card
- In customer loyalty program
- As campus card, clubs card, etc.

Supplied as:

- License of software
- Card

Features

- EEPROM for user data: 8K, 16K, 32K
- Compliant with ISO7816-1/2/3, T=0
- DES (and triple DES optional) and MAC capability for very high security level
- Mutual authentication with random numbers and dedicated key pair
- Five secret codes + Issuer Code + Pin to selectively enable access to data stored in card and to features and functions provided by the card, e.g., the READ and WRITE commands
- Issuer definable file management for convenient and efficient memory management
- Dedicated data structure for payment applications with CREDIT, DEBIT, INQUIRE ACCOUNT commands for secure transaction processing

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2 PC-Linked Readers
2.2.1 ACR30 Smart Card Reader/Writer

ACR30 Smart Card Reader/Writer

The ACR30 is a compact and cost-effective reader which supports all microcontroller cards with T=0 or T=1 protocols as well as the popular memory cards in the market today. It supports smart cards that conform to ISO 7816-1/2/3 standard. The ACR30 is Microsoft PC/SC compliant and supports all major PC platforms.

Being a single chip solution, with EMV level 1 certified, this reader is one of the most cost effective solutions for banking, e-commerce, information security, computer access control, electronic identification, and other smart card applications. The ACR30 smart card reader/writer can be connected to the computer through a serial asynchronous interface (RS-232) or USB interface. ACR30 has an optional built-in Security Access Module (SAM) slot that supports various high security applications. Other casing designs are also available.

Features

- Read and write all microprocessor cards (MCU) with T=0, T=1 protocols
- Read and write popular memory card types
- Certificate of conformance: PC/SC, CE, FCC, Microsoft WHQL, EMV Level 1, NETS
- Support smart cards that conform to ISO7816-1/2/3 standard
- Support commonly used memory cards (I2C, SLE4406/4436/5536, SLE4418/28, SLE4432/42)
- Support PPS (Protocol and Parameters Selection) with 9600 – 96000 bps in reading and writing smart cards
- RS-232 interface or USB interface to PC with simple command structure

Supported card types

MCU Cards

- The ACR30 can operate MCU card with T=0, T=1 protocol

Memory-based smart cards (synchronous interface)

- '104' type EEPROM non-reloadable token counter cards, including: GPM103, SLE 4406, SLE4436, SLE5536, ST1305, ST1335
- Cards following the I^2C bus protocol (free memory cards) such as Atmel AT24C01/02/04/08/16, ST-Microelectronics ST14C02C,14C04C
- SLE4432/4442 intelligent 256 bytes EEPROM with write-protect function
- SLE 4418/4428 intelligent 1K bytes EEPROM with write-protect function

Technical specification

Interface	RS-232 (Serial) or USB
Supply Voltage	Regulated 5V DC
Supply Current	< 100mA (without smart card)
Operating Temperature	0 - 50° C
Physical Dimensions	67.0mm (L) x 91.6mm (W) x 16.9mm (H)
CLK Frequency	3.68 / 4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC, EMV Level 1, NETS
Operating System Support	Windows 98, Me, NT (serial), 2K and XP, Linux, and MAC OS X

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.2 ACR30D Dual Interface Smart Card Reader/Writer

ACR30D Dual interface reader

ACR30D is a dual interface smart card reader, which can be connected via USB or serial RS-232 interface to the PC.

Similar to ACR30, ACR30D is a compact, cost-effective, single chip reader which supports all microcontroller cards with T=0 or T=1 protocols as well as the popular memory cards in the market today.

ACR30D supports smart cards that conform to ISO 7816-1/2/3 standard. It is also Microsoft PC/SC compliant and supports all major PC platforms. Other casing designs are also available.

Advantages

- System operators and application providers (such as banks) can distribute readers to end users without knowing which interface the customer wants
- Users can continue to use the serial interface today and switch to USB interface as they upgrade the PC in the future

Easy installation

- Plug in the USB interface to activate the USB interface
- Plug in the serial interface to activate the serial Plug and Play interface
- Plug in both interfaces will then activate the default serial Plug and Play interface

Features

- Read and write all microprocessor (MCU) cards with T=0, T=1 protocols
- Read and write popular memory card types
- Support smart cards that conform to ISO7816-1/2/3 standard
- Support commonly used memory cards (I2C, SLE4406/4436/5536, SLE4418/28, SLE4432/42)
- Support PPS (Protocol and Parameters Selection) with 9600 – 96000 bps in reading and writing smart cards

Supported card types

- Same as ACR30

Technical specification

Interface	Dual interface (Serial or USB)
Supply Voltage	Regulated 5V DC
Supply Current	< 100mA (without smart card)
Operating Temperature	0 - 50° C
Physical Dimensions	67.0mm (L) x 91.6mm (W) x 16.9mm (H)
CLK Frequency	3.68 / 4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), CE, FCC
Operating System Support	Windows 98, Me, NT (serial), 2K and XP, Linux, and MAC OS X

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.3 ACT30 SIMTracker (Plug-in Card Reader)

ACT30 SIMTracker
Plug-in card reader

The ACT30 SIMTracker is a single-chip, cost-effective smart card reader. It is an extremely compact USB device and is designed for SIM-sized (plug-in) smart cards access. With a size of only 52 mm x 20 mm x 10 mm, the ACT30 is highly suitable for portable applications, as it plugs into the USB port and requires no additional cable or wiring. Its size makes it the smallest USB smart card reader in the world

Features

- One of the smallest SIM-sized (plug-in) smart card reader/writer
- Does not take up any additional workspace
- Portable and easy to carry, it can be readily transferred from one PC to another
- An ideal solution for GSM SIM Card data access and management
- Excellent device for PC-based user authentication

Development Software

- 32-bit DLL files for Windows 98, Me, 2K, and XP
- PC/SC compliant IFD handler

System Requirements

- IBM PC compatible PC with Intel 486 processor or higher
- Microsoft Windows 98/Me/ 2000

Technical specification

Interface	USB
Supply Voltage	Regulated 5V DC
Supply Current	< 50mA (without smart card)
Operating Temperature	0 - 50° C
CLK Frequency	4 MHz
Physical Dimensions	52.0 mm (L) x 20.0 mm (W) x 10.0 mm (H)
Standards / Certifications	ISO 7816 (interface), PC/SC, CE, FCC
Operating System Support	Windows 98, Me, 2K and XP, XP SP1a, XP SP2

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.4 ACR38 Smart Card Reader/Writer

With the continuing evolution of personal computing standards, the ACR38 smart card reader/writer is a USB full speed device designed for use in the PC environment.

This reader series combines a modern design with the latest technology, and makes it a suitable solution for demanding environments. The ACR38 is ideal for use in network security, electronic payment systems, electronic identifications as well as other advanced smart card applications. ACR38 has an optional built-in Security Access Module (SAM) slot that supports various high security applications. Other casing designs are also available.

Features

- USB full speed interface to PC with simple command structure
- Read and write all microprocessor cards with T=0, T=1 protocols
- Supports most common memory-based smart cards, including I2C bus protocol cards (from 1K bits up to 1024K bits) and secure memory cards (Atmel AT88SC153, AT88SC1608, SLE4418/28, SLE4432/42)
- Support 1.8V. 3V and 5V MCU cards
- Short Circuit Protection
- Certificate of conformance: PC/SC, CE, FCC, Microsoft WHQL, EMV Level 1
- Support smart cards that conform to ISO7816-1/2/3 standard
- Support PPS (Protocol and Parameters Selection) with 1743–307200 bps in reading and writing smart cards

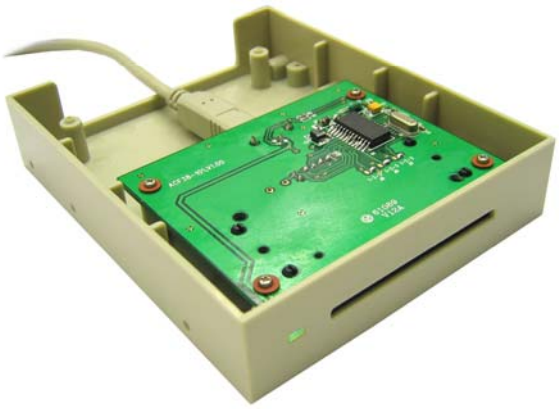
Technical specification

Interface	Full speed USB
Supply Voltage	Regulated 5V DC
Supply Current	< 100mA (without smart card)
Operating Temperature	0 - 50° C
Physical Dimensions	73.0mm (L) x 96.5mm (W) x 19.0mm (H)
CLK Frequency	4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC, EMV Level 1
Operating System Support	Windows 98, Me, NT, 2K and XP

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.5 ACR38F Floppy Bay Smart Card Reader



The ACR38F is the ideal solution for easy integration of a smart card reader into the desktop environment. It uses the same electronic circuit as the ACR38, and has the same versatility and cost-effectiveness that have always been associated with ACS smart card readers. Using the USB interface, it uses the PC's internal power supply, and can be configured in several ways to suit the customer's preference.

Similar to ACR38, ACR38F Floppy Bay Smart Card Reader is also very simple to use and to install. It is ideal for electronic commerce, home banking or e-purse facilities, secure computer access or any of a multitude of other applications.

Features

- USB full speed interface to PC with simple command structure
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Supports SLE 4418/28/32/42 memory cards
- Supports most common memory-based smart cards, including I2C bus protocol cards (from 1k bits up to 1024k bits) and secure memory cards (Atmel AT88SC153 and AT88SC1608)
- Support 1.8V. 3V and 5V MCU cards
- Short Circuit Protection
- ISO7816-1/2/3 compatible smart card interface
- Support PPS (Protocol and Parameters Selection) with 1743 – 250000 bps in reading and writing smart cards

Technical specification

Interface	USB full speed
Supply Voltage	Regulated 5V DC
Supply Current	< 50mA
Operating Temperature	0 - 50° C
CLK Frequency	4 MHz
Standard	ISO 7816 1/2/3, T=0 and T=1
Operating System Support	Windows 98, ME, 2K, XP, NT

© Advanced Card Systems Ltd.

2.2.6 ACR38K Keyboard with Built-in Smart Card Reader

The ACR38K Multimedia Keyboard offers you with specialized keyboard setting, accessing every function in just one key-press, plus a classy multimedia controller. This package also comes with a card reader that enables you to easily implement smart card-based systems. The ACS smart card readers utilize the latest advancement of microchip technology, that brings you high security for your confidential files in a convenient and easy to carry microchip smart card. The software drivers and tools in this package will enable you to write files to your smart card and to read the contents.

You can also write protect the contents of your smart card so that nobody can erase or overwrite the files.

Combined with our versatile smart card reader/writer, using the ACR38 module, the keyboard is transformed into a highly powerful component for security, e-commerce, and other applications.

Keyboard features

- USB interface with 18 multimedia hot keys support (back, forward, stop, refresh, search, favorites, home, mute, volume-, volume+, previous track, stop, play, next track, media, calculator, my computer)
- 4 programmable keys
- ACPI power management key support : power, sleep and wake up
- Fixed wrist rest

Smart card reader features

- USB full speed interface to PC with simple command structure
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Supports SLE 4418/28/32/42 memory cards
- Supports most common memory-based smart cards, including I2C bus protocol cards (from 1k bits up to 1024k bits) and secure memory cards (Atmel AT88SC153 and AT88SC1608)
- Support 1.8V. 3V and 5V MCU cards
- Short Circuit Protection
- ISO7816-1/2/3 compatible smart card interface
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards

Technical specification

Interface	USB full speed
Supply Voltage	Regulated 5V DC
Key Numbers	108/109/113 (US/EU/JP)
Keyboard Dim. (Mm)	475(L) x 254 (W) x 50(H)
Operating Temperature	0 - 40° C
Switch Reliability	10 million cycles
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC
Operating System Support	Windows 98, ME, 2K, XP, NT

© Advanced Card Systems Ltd.

2.2.7 ACR38T SIMTracker II (Plug-in Card Reader)

Due to the rising demand of e-working methods (remote office, home office...) and the increasing risk of unauthorized access to private network, it is time to properly secure access to PCs, desktops, and the Intranet and Extranet networks. ACR38 offers solutions based on smart card readers (connected to PCs) for access control.

The ACR38 smart card reader/writer is a USB full speed device which is the interface for the communication between a computer and a smart card. It is designed for the PC environment, and is the ultimate smart card peripheral for a PC.

ACR38 is a key partner of the PC as smart card is becoming an essential component in network security and electronic payment system. Providing secured network computing environment by its data encryption function, the SDK package allows users to easily develop their own application to best meet the specific system needs.

ACR38 is a low cost, yet reliable and effective smart card-to-PC interface with design focusing on convenient use and harmony with other PC peripherals in shape and color. It also provides the solution where the security of a smart card is required. It can be used as access control to a computer or network (intranet, extranet, ...), authentication for e-commerce (B to B, B to C), ... It is also very simple to use and install. It is ideal for electronic commerce, home banking or e-purse facilities, secure computer access or any of a multitude of other applications.

Features

- USB full speed interface to PC with simple command structure
- Support Plug-in SIM-sized card
- Read and write all microprocessor SIM-sized cards with T=0 or T=1 protocols
- Support SLE 4418/28/32/42 memory cards
- Support most common memory-based smart cards, including I2C bus protocol cards (from 1k bits up to 1024k bits) and secure memory cards (Atmel AT88SC153 and AT88SC1608)
- Support 1.8V. 3V and 5V MCU cards
- Support GSM 11.11 specification
- Require no additional cable
- Short Circuit Protection
- Conform with: ISO 7816-1/2/3, PC/SC, Microsoft WHQL, EMV Level 1, USB Full Speed
- ISO7816-1/2/3 compatible smart card interface
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards

Technical specification

Interface	USB full speed
Supply Voltage	Regulated 5V DC
Supply Current	< 50mA
Operating Temperature	0 - 50° C
CLK Frequency	4 MHz
Physical Dimensions	78.73mm (L) x 21.50mm (W) x 11.00mm (H)
Standards / Certifications	EMV Level 1, USB Full Speed, ISO7816-1/2/3, PC/SC, Microsoft WHQL 2000, XP
Operating System Support	Windows 98, Me, 2K and XP, XP SP1a, XP SP 2

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.8 ACR38DT DualKey

Due to the rising demand of e-working methods (remote office, home office...) and snowballing hacking likeliness, it is the time to properly secure access to PCs, desktops, Intranet & Extranet networks and physical access control. ACR38DT offers both solutions based on SIM-sized **combi smart card** (contactless and contact card) for logical and physical access control.

The ACR38DT Contactless/Contact DualKey is an extension of ACR38T SIMTracker II. It has full ACR38T functionalities with contactless value-added feature.

i) Serves as a plug-in (SIM-sized) card reader:
It is an extremely compact USB full speed device completely compatible with the ACR38 smart card reader and is designed to access SIM-sized smart cards (Plug-in card). With a size of only 78.73 mm x 21.50 mm x 11.00 mm, the ACR38DT is highly suitable for portable applications, as it plugs into the USB port and requires no additional cable or wiring. It also fulfils the GSM 11.11 specification. It is designed for PC environment, ultimate smart card peripheral for a PC.

ii) Serves as a contactless card:
While the ACR38DT serves as a contactless card, the embedded antenna coil enables the contactless part of the SIM-sized combi card to work as a contactless card to communicate with contactless readers.

ACR38DT DualKey is a good quality, reliable and effective reader with designs focusing on convenient use and harmony with other PC peripherals in terms of shapes and colors. It is ideal for electronic commerce, physical access control, home banking or e-purse facilities, secure computer access, transportation and GSM application tool.

Features

- **USB full speed** interface to PC with simple command structure
- Support Plug-in SIM-sized card
- Read and write all microprocessor cards with T=0 or T=1 protocol
- Support SLE 4418/28/32/42 memory cards
- Support the most common memory-based smart cards, including **I2C bus protocol cards** (from 1k bits up to 1024k bits) and secure memory cards (**Atmel AT88SC153** and **AT88SC1608**)
- Support **1.8V. 3V** and **5V** MCU cards
- Support GSM 11.11 specification
- Require no additional cable
- Short Circuit Protection
- ISO 7816-1/2/3, PC/SC, CE, FCC
- ISO7816-1/2/3 compatible smart card interface
- Embedded antenna coil
- Full functionality with SIM-sized Combi card in contact and contactless interface
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards
- A patented technology combines physical and logical access control capabilities

Technical specification

Interface	USB full speed
Supply Voltage	Regulated 5V DC
Supply Current	< 50mA
Operating Temperature	0 - 50° C
CLK Frequency	4 MHz
Physical Dimensions	78.73mm (L) x 21.50mm (W) x 11.00mm (H)
Operating System Support	Windows 98, ME, 2K, XP

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.9 ACR38ET DualKey2

To effectively deter hacking or unauthorized access to company assets, a need for an effective device to guard the physical and logical access is imminent. With ACR38ET, you can safeguard the access to PCs, desktops, Intranet & Extranet networks, physical doors, safes, databanks… etc, with supreme confidence. With that power, ACR38ET is astonishingly simple – having innate contactless card functionalities and requiring simply a SIM-sized smart card for contact card functionalities.

The ACR38ET DualKey2 is an extension of ACR38T SIMTracker II. It has full ACR38T functionalities with contactless value-added feature.

i) Serves as a plug-in (SIM-sized) card reader:
It is an extremely compact USB full speed device completely compatible with the ACR38 smart card reader and is designed to access SIM-sized smart cards (Plug-in card). With a size of only 78.73 mm x 21.50 mm x 11.00 mm, the ACR38ET is highly suitable for portable applications, as it plugs into the USB port and requires no additional cable or wiring. It also fulfils the GSM 11.11 specification. It is designed for the PC environment, and is an ultimate smart card peripheral for a PC.

ii) Serves as a contactless card:
While the SIM-sized card enables the contact card security benefits, the ACR38ET is virtually a Mifare ® card token. Make use of this feature, and you may benefit from the speed and convenience contactless technologies can bring.

Since the contact card information is stored in the SIM card, while the contactless card information is stored in the ACR38ET itself, you can have a highly secure system based on data storage segregation.

ACR38ET DualKey2 is a good quality, reliable and effective reader with designs focused on convenient use and harmony with other PC peripherals in terms of shapes and colors. It is ideal for electronic commerce, physical access control, home banking or e-purse facilities, secure computer access, transportation and GSM application tool.

Features

- **USB full speed** interface to PC with simple command structure
- Support Plug-in SIM-sized card
- Read and write all microprocessor cards with T=0 or T=1 protocol
- Support SLE 4418/28/32/42 memory cards
- Support the most common memory-based smart cards, including **I2C bus protocol cards** (from 1k bits up to 1024k bits) and secure memory cards (**Atmel AT88SC153** and **AT88SC1608**)
- Support **1.8V. 3V** and **5V** MCU cards
- Support GSM 11.11 specification
- Require no additional cable
- Short Circuit Protection
- ISO 7816-1/2/3, PC/SC, CE, FCC
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards

Technical specification

Interface	USB full speed
Supply Voltage	Regulated 5V DC
Supply Current	< 50mA
Operating Temperature	0 - 50° C
CLK Frequency	4 MHz
Standard/Specifications	ISO7816-1/2/3, PC/SC
Operating System Support	Windows 98, ME, 2K, XP

© Advanced Card Systems Ltd.

2.2.10 ACR91 PCMCIA Type II Smart Card Reader/Writer

ACR91 PCMCIA smart card reader is a compact reader designed for PDAs, notebooks, and portable computers with PCMCIA interface.

The ACR91 is designed to meet all major standards like PC/SC, ISO 7816, GSM 11.11, Home Banking Computer Interface (HBCI), the PC- 2001 Specification.

The ACR91 establishes a uniform interface between the computer and the smart card for a wide variety of cards. The software engineers need not to understand the full technical details of the smart card/computer interface to carry out implementation of a smart card system.

Features

- Read and write all microprocessor cards (MCU) with T=0 and T=1 protocols
- Support 1.8V, 3V an d 5V smart cards
- Certificate of conformance: ISO 7816-1/2/3, PC/SC, CE, HBCI
- ISO7816-1/2/3 compatible smart card interface
- Transmission speed (with PC: 16Mbit/sec)
- Transmission speed (with Card: up to 420Kbit/sec)
- Win 98/ME/NT4/2000/XP/CE3.0/CE.NET
- 4 MHz/8MHz CLK frequency
- 8 sliding contacts (8 contacts)
- Min 30,000 card insertion cycles
- Microsoft PC/SC compliant application programming interface
- Stainless steel case material
- 43g weight
- PCMCIA mechanical specifications, ISO 7816/1

Technical specification

Interface	PCMCIA, Plug and Play support
Supply voltage	Regulated 5V DC
CLK Frequency	4 MHz/8MHz
Standards / Certifications	ISO7816-1/2/3 (interface), PC/SC, CE, HBCI
Operating System Support	Windows 98, ME, 2000, XP, NT4.0, and CE3.0/CE.NET

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.11 AC1030 / AC1038 / AC1080 Reader Chipset

AC1030 chipset is used in the ACR30 smart card reader series.

Features

- ISO 7816 compatible smart card interface
- Supports most common memory-based smart cards (SLE4406, SLE4418/4428, SLE4432/4442 and I2C cards with memory 1k-16k bits)
- Supports CPU-based cards with T=0, T=1 protocol
- Automatic detection memory-based card or MCU-based card
- Power up/down sequence compatible to ISO 7816 for signal integrity
- Automatic detection of card insertion and removal
- Serial or USB (low speed at 1.5Mbps) interface to host computer with simple command structure
- 34-Pin SOIC for AC1030
- Operating temperature range: 0°C to 70°C (AC1030)
- Power supply at 4.0V – 5.25V

AC1038 chipset is used in the ACR38 smart card reader series.

Features

- ISO 7816 compatible smart card interface
- Supports most common memory-based smart cards (SLE4418/4428, SLE4432/4442, I2C cards with memory 1k-1024k bits, AT88SC1608 and AT88SC153)
- Supports CPU-based cards with T=0, T=1 protocol
- Supports CPU-based cards with voltage 1.8V, 3V and 5V
- Automatic detection memory-based card or MCU-based card
- Power up/down sequence compatible with ISO 7816 for signal integrity
- Automatic detection of card insertion and removal
- USB (full speed at 12Mbps) interface to host computer with simple command structure
- 24-Pin SOIC for AC1038
- Operating temperature range: 0°C to 70°C (AC1038)
- Power supply at 4.0V – 5.25V

AC1080 reader chipset is used in the ACR80 smart card reader with pin-pad.

Features

- Multiple-slot (4 slots) smart card reader co-processor
- Optional features for keypads, LCD display and magnetic stripe reader, all-in-one chip
- A serial TTL or USB interface is provided, with communication protocol made available to allow the developer to have full control of all resources supported by AC1080, i.e. smart cards, keypads, displays and magnetic stripe reader
- AC1080 supports T=0, T=1 smart cards, memory card SLE4418/4428, SLE4432/4442
- Current firmware has been certified for EMV Level 1.

* Note that AC1030 / AC1038 / AC1080 are the product numbers used by ACS and they will not be printed on the reader chipset.

© Advanced Card Systems Ltd.

2.2.12 ACM30 / ACM38 / ACM80 - ACR30 / ACR38 / ACR80 Reader Modules

ACM30 /ACM38 reader modules

The ACR30 / ACR38 / ACR80 can be supplied in module form - ACM30 / ACM38 / ACM80. This is an ideal solution for integrating smart card access into any application. The module retains the full functionalities of the reader/writer, and can be easily integrated into payphones, parking meters, vending machines, laundries, gaming machines, ATM's, sophisticated access control systems, etc. The ACM30 comes with either the serial or USB connection whereas the ACM38 only comes with USB connection.

Note that the connector type that comes with the reader module can be customized. The standard package is with no connector. Sliding and landing connectors are customized options.

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.13 AC-Kit - Smart Card Development Kit

The ACS Smart Card Development Kit enables effective development of customized applications and systems using smart cards, card readers, and PCs. Reflecting ACS expertise in smart card technologies, the development kit is a complete package containing all the vital components required for smart card application development, which is suitable for both beginners and experienced developers. It is also an ideal training and development tool for those who want to know more about smart card technologies. Software development companies can use the kit to develop systems specific to their requirements to meet customers' demanding needs or to incorporate various smart card technologies into their current applications.

2 x ACR30 Smart Card Readers

- Two ACR30 smart card readers (including USB and RS-232 connection interface)
- Support smart cards that conform to ISO7816-1/2/3 standard
- PC/SC compliant

1 x Balance reader

- Power: 2 pieces of 3V lithium batteries; replaceable
- Display: 10-digit LCD

15 x Test cards

- 5 x ACOS2 microprocessor-based card
- 5 x SLE 4442 256 byte Memory card with write protect function and security logic
- 5 x SLE 4428 1 Kbyte Memory card with write protect function and security logic

1 x CD-ROM

Software drivers supporting Windows 95, 98, Me, NT (Serial), 2000, and XP and Mac OS X, and Linux

- PC/SC compliant IFD handler
- 32-bit OCX file

Demo programs to showcase smart card features and capabilities

- School application using the ACOS2 card as multi-application card (ID, library and stored credit)
- Virtual balance reader for phone cards

Cardtool evaluation software

- Used for both memory and ACOS2 cards
- Facilitates easy transfer of data to various memory locations on the card
- Provides a convenient test facility to evaluate card response to different data

Training materials useful to both novice and experienced users

- Introduction to smart cards and smart card application development
- Cryptographic security concepts
- Electronic Purse applications
- Overview of several specific types of smart cards

Sample code written in various programming languages

- Used to demonstrate basic commands used to communicate with the card and reader

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.2.14 SDK-ACR38 – ACR38 Smart Card Reader Software Development Kit

ACR38 SDK is a complete package containing all the vital components required for smart card application development. It provides developers with a convenient and effective way to incorporate smart cards into their solutions.

Reflecting ACS expertise in smart card technologies, the development kit is a complete package containing all the vital components required for MCU-based and memory-based smart card application development, which is suitable for both beginners and experienced developers.

It is also an ideal training and development tool for those who would like to know more about MCU-based and memory-based smart card technologies. Software development companies can use the kit to develop systems specific to their requirements to meet customers' demanding needs or to incorporate various contactless smart card technologies into their current applications.

Package Contents

- 1 x ACR38 Smart Card Reader
- 1 x ACR38T SIMTracker SIM-sized plug-in Smart Card Reader
- 1 x ABR08LS 8-digit Balance Reader
- 5 x ACOS2 8Kbyte microprocessor-based smart cards
- 5 x ACOS2 SIM-size plug-in 8Kbyte microprocessor-based smart cards
- 5 x SLE 4428 memory-based smart cards
- 5 x SLE 4442 memory-based smart cards
- Installation CD-ROM (including drivers, sample codes, utility tools and demo software)
- SDK User manual

Features

- **USB full speed** interface to PC with simple command structure
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Supports SLE 4418/28/32/42 memory cards
- Supports most common memory-based smart cards, including **I2C bus protocol cards** (from 1k bits up to 1024k bits) and secure memory cards (**Atmel AT88SC153** and **AT88SC1608**)
- Support **1.8V. 3V** and **5V** MCU cards
- Short Circuit Protection
- Certificate of conformance: ISO 7816-1/2/3, PC/SC, CE, FCC, Microsoft WHQL, EMV certified
- ISO7816-1/2/3 compatible smart card interface
- Support PPS (Protocol and Parameters Selection) with 1743 – 307200 bps in reading and writing smart cards
- 768 bytes RAM size and 16K bytes ROM size
- SDK contains all the vital components required for MCU-based and memory-based smart card application development
- SDK designed for both novice and experienced developers

Technical specification

Interface	USB
Supply Voltage	Regulated 5V DC
Supply Current	Max. 50 mA
Operating Temperature	0 - 50° C
Physical Dimensions	97mm (L) x 72mm (B) x 18.5mm (H)
Smart Card Read/Write Speed	1743 – 307200 bps
Standards / Certifications	EMV Level 1, ISO7816-1/2/3, PC/SC, CE, FCC, Microsoft WHQL ME, 2K, XP
Card Type Support	Support 1.8V, 3V, 5V MCU cards Supports **I2C bus protocol cards** (from 1k bits up to 1024k bits) and secure memory cards (**Atmel AT88SC153** and **AT88SC1608**), also supports SLE 4418/28, 4432/42.

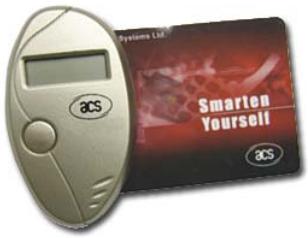
Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.3 Smart Card Balance Readers

2.3.1 ABR06BS / ABR08LS/ ABR10RS– ACS Balance Readers

ABR06BS (6-digits)



ABR08LS (8-digits)

ABR10RS (10-digits)

These balance readers are portable devices that can be configured for use in various applications such as simple balance checking, currency conversion, viewing transaction records, identity verification, campus environments (class attendance, library record, etc.) and more. They can be made to support ordinary phone cards, Visa Cash, Mondex, and other memory or microprocessor cards as required by customers.

ABR06BS: ACS Balance Readers with 6-digit display, book shape
The standard device has a 6 numeric display

ABR08LS: ACS Balance Readers with 8-digit display, leaf shape
The standard device has a 8 numeric display

ABR10RS: ACS balance Readers with 10 digits of display, ruler shape (longer LCD)
The standard device has a display for 4 alphanumeric and 6 numeric display

We can also customize the number of display digits, alphanumeric display, casing design, logo printing, supported cards, supported languages, etc. to meet customers' specific needs and requirements.

Features

- Key-chain Pocket-sized
- Stylish casing design
- Long lasting replaceable battery
- Configurable front button (ABR08LS only)
- Automatic display upon card insertion
- Support multiple information display
- Support majority of memory and/or MCU cards as required by customers

Technical specification

Power Supply	2 pieces of 3V lithium batteries; replaceable
Card connector	Sliding contacts
LCD Display	Choice of 6, 8, 10 or 16 digits
Physical Dimensions	ABR06BS: 62.0 mm (L) x 34.0 mm (W) x 9.0 mm (H) ABR08LS: 72.3 mm (L) x 42.3 mm (W) x 12.5 mm (H) ABR10RS/ABR16RS: 71.9 mm (L) x 30.4 mm (W) x 13.0 mm (H)
Weight	~22 grams
Operating Temperature	0 - 50° C
Standards / Certifications	CE, FCC

© Advanced Card Systems Ltd.

2.3.2 APG08LS - Dynamic Password Generator

This dynamic password generator is compact and is used with a SIM-sized smart card. It can be used with a user's normal login and password for two-factor authentication, and therefore it is suitable for use in security applications. An identical password list can be stored in both the smart card and the server, and then the matching of the two passwords can be used for authentication purposes.

This highly portable balance reader comes with 8-digits for display as standard but we can also customize the casing design, logo printing, number of display digits, alpha-numeric display, etc. to meet your specific needs and requirements.

Features

- Key-chain, pocket-sized
- Stylish casing design
- Long lasting replaceable battery
- Support multiple information display

Technical specification

Power Supply	2 pieces of 3V lithium batteries; replaceable
Card connector	Sliding contacts
LCD Display	8-digit numeric display
Operating Temperature	0 - 50° C
Standards / Certifications	CE, FCC

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.3.3 ABR Balance Reader Sample Pack

ABR balance reader can be used for checking the balance in your electronic purse card (e.g. Visa Cash, Mondex, Gemplus cash card, Proton card, prepaid phone cards (e.g. Eurochip 4436), etc.

You can also view the latest transactions on your card and use the balance reader to show user information such as name and telephone number. Adding a balance reader in your smart card project increases the attractiveness and effectiveness of your project.

The balance reader is also available for custom branding for promotional purposes. OEM & ODM enquiries are welcome. Colors can be easily defined, and your own logo or design can be printed. Our balance readers can be easily customized to satisfy customer requirements (cards supported, display content, color, casing, buttons, etc.)

Package Contents

ABR06BS

- 6-digit numeric LCD
- Operation temperature: 0° to 50 °C
- Certificate of conformance: CE, FCC

ABR10RS

- 10-digit (4 alphanumeric & 6 numerals) LCD
- Operation temperature: 0° to 50 °C
- Certificate of conformance: CE, FCC

6 x Test cards

- 3 x ACOS2 microprocessor-based card (For ABR10RS)
- 3 x Prepaid phone card (For ABR06BS)

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.4 Smart Card / Finger Print Readers

2.4.1 ADT60 BioSIMKey Fingerprint Scanner and Plug-in Smart Card Reader

ADT60 BioSIMKey

Combining the functions of *ACS' versatile ACR30 reader* and UPEK*'s patented TouchChip technology*, the BioSIMKey is a compact USB device that can scan fingerprints and accept plug-in (SIM-sized) smart cards. (*UPEK is a subsidiary of STMicroelectronics, ST*) By using fingerprints to replace passwords or PINs, this device harnesses the power of biometrics and smart cards, and provides a highly secure, yet convenient and affordable authentication process. It is an ideal solution for a wide range of security-dependent applications.

Using a simple Application Programming Interface (API), it is extremely easy for designers to integrate the fingerprint authentication features into their applications. The developer can develop the interface very quickly without an in-depth knowledge of biometrics.

Fingerprint Scanner

- High-resolution 508 DPI imaging
- Utilizes UPEK's patented TouchChip technology, resulting in high quality fingerprint images in any environment

Smart Card Reader

- Support smart cards that conform to ISO7816 standard
- PC/SC compliant
- Support all micro-controller cards, with T=0, T=1 protocols

Security Features Possible

- Encrypted finger print template stored inside smart card
- Session key generation among smart card, BioSIMKey Processor and host computer
- Unique bonding between the smart card and BioSIMkey

Typical Applications

- Remote electronic voting
- Secured e-commerce
- Secure home banking
- Computer system logon

Technical specification

Interface	USB
Supply Voltage	Regulated 5V DC (USB powered)
Active Sensor Size	12.8 mm x18.0 mm
Array Size	256 x 360 pixels
Image Resolution	508 DPI
Physical Dimensions	71.5 mm (L) x 32.0 mm (W) x 16 mm (H)
CLK Frequency	4 MHz
Standards / Certifications	ISO 7816 (interface), PC/SC, CE, FCC
Operating System Support	Windows 98, Me, 2K and XP

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.4.2 AET60 BioCARDKey Fingerprint Scanner and Smart Card Reader

Combining the fingerprint sensor and smart card reader, and using the same Active Capacitive Sensing technology as BioSIMKey, the BioCARDKey ensures the highest quality images to be used with full-size smart cards. It improves security and efficiency of network access, e-commerce, home banking and point-of-sales transactions.

As a proven solution for biometrics, the BioCARDKey is an ideal solution for a broad range of applications including e-business, network access, home banking, secure e-mail, file encryption, and government security.

Using a simple Application Programming Interface, it is extremely easy for designers to integrate the fingerprint authentication features into their applications. The developer can develop the interface very quickly without an in-depth knowledge of biometrics.

Features

- High-speed USB interface
- Requiring no additional power supply
- Portable and easily transferable from one PC to another

Fingerprint Scanner

- High-resolution 508 DPI imaging
- Utilizes UPEK's patented TouchChip technology, resulting in high quality fingerprint images in any environment

Smart Card Reader

- Support smart cards that conform to ISO7816-1/2/3 standard
- PC/SC compliant
- Supports all micro-controller cards, with T=0, T=1 protocols

Security Features Possible

- Encrypted finger print template stored inside smart card
- Session key generation among smart card, BioCardKey Processor and host computer
- Unique bonding between the smart card and BioCardkey

Typical Applications

- Remote electronic voting
- Secure e-commerce
- Secure home banking
- Computer system logon

Technical specification

Interface	USB
Supply Voltage	Regulated 5V DC (USB powered)
Active Sensor Size	12.8 mm x 18.0 mm
Array Size	256 x 360 pixels
Image Resolution	508 DPI
CLK Frequency	4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC
Operating System Support	Windows 98, Me, 2K and XP

© Advanced Card Systems Ltd.

2.4.3 AET63 BioTRUSTKey Fingerprint Scanner and Smart Card Reader

The AET63 BioTRUSTKey combines the highly successful silicon fingerprint sensor with a smart card reader to achieve ultra-secure authentication. It is a fully integrated fingerprint-based biometric subsystem, combining fingerprint sensing and algorithm processing in a single, compact device. All biometric algorithm processing is carried out in a custom chip integrated at the back of the silicon fingerprint sensor.

Our biometric products leverage ACS technology and experience in implementing readers in smart card based authentication programs. By partnering with leading biometric sensor and algorithm supplier, we are providing a high level of security and convenience for applications in the government, corporate, financial and healthcare sectors.

With BioTRUSTKey, you have all the hardware and software you need to add biometric security to your custom applications. For PC applications, the BioTRUSTKey provides the highest level of security. This is because both the template extraction and matching algorithms run within the device itself - not in the PC.

The BioTRUSTKey significantly reduces development time and cost. Therefore new product design can be validated quickly and accurately. With the simple Application Programming Interface (API) provided, designers can easily add fingerprint authentication and smart card features into their products/applications. A system can be developed very quickly, without an in-depth knowledge of biometrics.

Features

- USB Plug and play interface
- Require no additional power supply
- High-resolution 508 DPI imaging
- Utilizes CMOS active capacitive pixel-sensing technology, resulting in high quality fingerprint image capture
- The template extraction and matching algorithms run within the device itself - not in the PC
- Large active sensor size – 12.8 mm x 18.0 mm
- Support all micro-controller cards, with T=0, T=1 protocols
- Support one SAM card (optional)

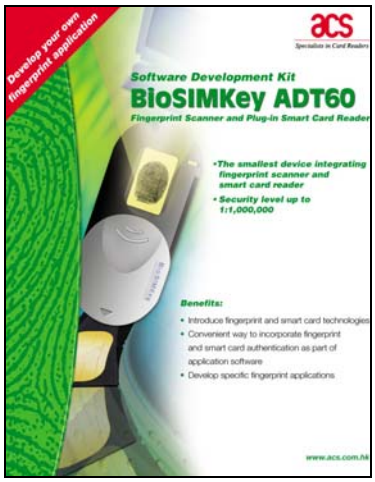
Techincal Specification

Interface	USB
Supply Voltage	Regulated 5V DC (powered by USB)
Active Sensor Size	12.8 mm x18.0 mm
Array Size	256 x 360 pixels
Image Resolution	508 DPI
CLK Frequency	4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), CE, FCC
Operating System Support	Windows 98, Me, 2K and XP

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.4.4 SDK-ADT60 – ADT60 BioSIMKey Software Development Kit (SDK)


Develop your own fingerprint application
acs
Software Development Kit
BioSIMKey ADT60
Fingerprint Scanner and Plug-in Smart Card Reader
•The smallest device integrating fingerprint scanner and smart card reader
•Security level up to 1:1,000,000
Benefits:
• Introduce fingerprint and smart card technologies
• Convenient way to incorporate fingerprint and smart card authentication as part of application software
• Develop specific fingerprint applications
www.acs.com.hk

BioSIMKey is the world's smallest fingerprint scanning and recognition device incorporating smart card reading/writing capabilities. As a proven solution for biometrics with security level as high as 1:1,000,000, the BioSIMKey is ideal for a broad range of applications including e-business, network access, home banking, secure e-mail, file encryption, and government securities, etc.

ACS is launching a development kit, BioSIMKey SDK, in order to provide developers with a convenient and effective way to incorporate fingerprint and smart card authentication as part of their solutions.

Using the simple Application Programming Interface (API), designers can easily integrate fingerprint authentication features into their applications. The interface could be developed quickly without any in-depth knowledge of biometrics.

Package Contents

- BioSIMKey ADT60 - Fingerprint scanner & plug-in smart card reader
- 10 ACOS2 8Kbyte Microprocessor-based Card (MCU) (include 5 smart cards and 5 plug-in cards)
- ACS BioSIMKey installation and operation CD-ROM (including drivers, source codes, and demo software)
- Plug-in card converter (converting smart card format to plug-in card format)
- Installation guide

Features

- Smallest integrated fingerprint scanner and smart card reader
- Security level as high as 1:1,000,000
- Portable and easily transferable from one PC to another
- Enhances smart card and/or PKI security by requiring a fingerprint instead of a PIN or password
- Utilizes UPEK's patented TouchChip technology, resulting in high quality fingerprint images in any environment
- High-speed USB interface
- SDK contains all the vital components required for smart card / finger print application development
- SDK designed for both novice and experienced developers

© Advanced Card Systems Ltd.

2.4.5 SDK-AET60 - AET60 BioCARDKey Software Development Kit (SDK)

BioCARDKey is a fingerprint scanning and recognition device incorporating smart card reading/writing capabilities. As a proven solution for biometrics with security level as high as 1:1,000,000, the BioCARDKey is ideal for a broad range of applications including e-business, network access, home banking, secure e-mail, file encryption, and government securities, etc.

This BioCARDKey software development kit provides the developers with a convenient and effective way to incorporate fingerprint and smart card authentication as part of their solutions.

Using the simple Application Programming Interface (API), designers can easily integrate fingerprint authentication features into their applications. The interface could be developed quickly without any in-depth knowledge of biometrics.

Package Contents

- AET60 BioCARDKey - Fingerprint scanner & smart card reader
- 10 ACOS2 8Kbyte Microprocessor-based Card (MCU)
- AET60 BioCARDKey installation and operation CD-ROM (including drivers, source codes, and demo software)
- Card holder (for SIM-sized smart card to place in card holder for insertion to the reader)
- Quick start guide

Features

- Integrated fingerprint scanner and smart card reader
- Security level as high as 1:1,000,000
- Portable and easily transferable from one PC to another
- Enhances smart card and/or PKI security by requiring a fingerprint instead of a PIN or password
- Utilizes UPEK's patented TouchChip technology, resulting in high quality fingerprint images in any environment
- High-speed USB interface
- SDK contains all the vital components required for smart card / finger print application development
- SDK designed for both novice and experienced developers

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.4.6 SDK-AET63 - AET63 BioTRUSTKey Software Development Kit (SDK)

BioTRUSTKey is a fingerprint scanning and recognition device incorporating smart card reading/writing capabilities. Since all biometric algorithm processing is carried out in a custom chip within the device, security level is further enhanced. The BioTRUSTKey is ideal for a broad range of applications including e-business, network access, home banking, secure e-mail, file encryption, and government securities, etc.

This BioTRUSTKey software development kit provides the developers with a convenient and effective way to incorporate fingerprint and smart card authentication as part of their solutions.

Using the simple Application Programming Interface (API), designers can easily integrate fingerprint authentication features into their applications. The interface could be developed quickly without any in-depth knowledge of biometrics.

Package Contents

- AET63 BioTRUSTKey - Fingerprint scanner & smart card reader
- 10 ACOS2 8Kbyte Microprocessor-based Card (MCU)
- AET63 BioTRUSTKey installation and operation CD-ROM (including drivers, source codes, and demo software)
- Card holder (for SIM-sized smart card to place in card holder for insertion to the reader)
- Quick start guide

Features

- Integrated fingerprint scanner and smart card reader
- Utilizes CMOS active capacitive pixel-sensing technology, resulting in quality fingerprint image capture
- The template extraction and matching algorithms run within the device itself – not in the PC
- Portable and easily transferable from one PC to another
- Enhances smart card and/or PKI security by requiring a fingerprint instead of a PIN or password
- High-speed USB interface
- SDK contains all the vital components required for smart card / finger print application development
- SDK designed for both novice and experienced developers

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.5 Smart Card Readers with PIN-pad
2.5.1 ACR88 Handheld Portable Smart Card Reader

With the increasingly wide acceptance of smart card in the market in the recent years, smart card applications have gained maturity in terms of its level of sophistication and coverage in the market. With this, a versatile smart card reader becomes an emergent need.

ACR88 is a versatile handheld portable smart card reader, having a built-in keypad, LCD display and buzzer features. It can also host additional features like fingerprint scanner, contactless card reader or non-volatile memory to enhance the security and give better support to your system.

ACR88 is a line of secured electronic devices of pocket size designed primarily for multi-application. It is capable of performing secure authentication, displaying rich information from the card, conducting online or offline transaction.

With ACR88, and its robust development platform, Astro Builder, users can now easily build their own applications loadable to the Astro platform, complementary to the many common functional features already available in the platform. No more programming in lower level languages, or dealing with kernel development and other hardware platform dependent issues! Application developers can now use the set of well-defined easy-to-use commands provided, and have full rein of realizing the limitless possibilities which your application will bring.

Features

- Built-in 20-Key Keypad with extremely high durability
- 132 x 64 dot-matrix LCD
- Monotone buzzer with software controlled ON/OFF
- Accepts 3 V and 5V cards: two full-size cards and 3 SAM cards
- Real-time clock (RTC)
- Requires no additional power supply in PC-Linked mode
- Automatically switch to 3 x AAA battery power in standalone mode
- Low-battery detection
- Independent backup battery (1 x CR2032) for RAM and RTC
- Support up to 115kbps card communication speed
- EMV2000 v.4.0 Level 1
- CCID compatible
- On-board firmware upgradeable, on-board script loading
- Tamper switch
- Hand-held size and weight
- (Optional) Fingerprint scanner
- (Optional) Contactless card reader
- (Optional) Non-volatile memory

Technical specification

Interface	USB 1.1 Full Speed
Operating Voltage	3.3V
Backup Battery	Independent backup battery (1 x CR2032) for RAM and RTC
Card/Reader Communication Speed	Up to 115,200 bps
Operating Temperature	0 - 50° C
Language	Programmable in C Language
Keypad	20 keys
LCD Display	132 x 64 dot-matrix LCD with backlight
Buzzer	Monotone buzzer with software controlled ON/OFF

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.5.2 ACR80 PIN-pad reader

The ACR80 is a secure PIN-pad smart card reader featuring a 4 by 20 line character dot-matrix LCD display as well as providing up to 122 x 32 pixel graphic image display. It includes a 16-key keypad with 4 function keys, 2 smart card slots, and up to 6 SAM card slots depending on customers' preferences.

The device supports T=0 or T=1 cards. It is an ideal solution for supporting dynamic upgrade of code and application, 3DES-based encryption for server and reader authentication and secure PIN management.

ACR80 is a PC based smart card interface device (IFD), small in size but packed with capabilities. The plan for next generation product would be to turn it into an even more sophisticated device number such as fingerprint biometrics.

ACR80 is ideal for application such as home-banking and e-commerce applications whereby a simple PC based smart card does not meet your security requirements – such as PIN entry and confirmation of transaction details before signing. ACR80 is also ideal for health card application.

Features

- Two ISO7816-1/2/3 compatible smart card interfaces
- Two ISO7816-1/2/3 compatible security application modules (SAM) card interfaces (2, 4 or 6 SAM-slots available)
- Supports MCU-based cards with T=0, T=1 protocol
- Supports SLE4432/42 and SLE4418/28 memory cards
- ANSI x 9.52
- ANSI x 9.24 DUKPT
- Secure firmware upgrade in the field
- EMV level 1
- RS-232 (serial) or USB interface
- Short circuit protection on all slots
- Simple and fully documented API (Application Programming Interface) for easy application development
- 122x32 dots LCD full graphic display with LED backlight
- Adjustable LCD contrast
- Internal display buffer allows free graphic modification with only one time drawing
- 16-key keypad with extremely high durability
- Tamper sensing switch
- Buzzer with software switching control
- Real time clock
- 32K bytes EEPROM (optional)

Technical specification

Interface	RS-232 (Serial) or USB
Supply Voltage	Regulated 5V DC
Supply Current	< 40-50mA (without backlight and smart card)
Operating Temperature	0 - 50° C
Physical Dimensions	138.0mm (L) x79.0mm (W) x24.7mm (H)
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC, EMV Level 1
Operating System Support	Windows 98, Me, NT (serial), 2K and XP

© Advanced Card Systems Ltd.

2.5.3 SDK-ACR80 - Software Development Kit (SDK)

The ACR80 Software Development Kit (ACR80 SDK) enables effective development of customized applications and systems using smart cards, card readers, and PCs. Reflecting ACS expertise in smart card technologies, the development kit is a complete package containing all the vital components required for smart card application development, which is suitable for both beginners and experienced developers. It is also an ideal training and development tool for those who would like to know more about smart card technologies.

1 x ACR80 PIN-pad reader

- Two smart card slots and two SAM slots
- Secure firmware upgrade in the field
- ANSI x 9.52
- ANSI x 9.24 DUKPT
- Support smart cards that conform to ISO7816-1/2/3 standard

10 x ACOS2 microprocessor-based card

- Compliance with ISO7816, T=0 protocol
- MCU card with DES and MAC security capabilities

1 x CD-ROM

Software drivers supporting Windows 98, Me, NT (serial), 2000, and XP

Demo programs to showcase smart card features and capabilities

- “Smart Casino” demo (using the ACOS2 card as token)
- “ATM” demo (using the ACOS2 card as ATM card)
- “Taximeter” demo (using ACOS2 card as e-purse card)

Cardtool evaluation software

- Used for both memory and ACOS2 cards
- Facilitates easy transfer of data to various memory locations on the card
- Provides a convenient test facility to evaluate card response to different data

Sample code written in various programming languages (Delphi, VB, and C++)

- Used to demonstrate basic commands used to communicate with the card and reader

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen’s Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.6 Contactless Readers
2.6.1 ACR120 Contactless Smart Card Reader/Writer

ACR120 is a compact and cost-effective contactless smart card reader and writer which supports ISO 14443 cards and MIFARE® cards. It is designed for fast integration into different systems. It can be easily integrated into existing data collection applications such as portable terminals, ticketing, vending machine or access control.

It has an optional built-in contact smart card slot which helps configuring in different ways to suit the customer's preference.

It includes an etched/-PCB antenna inside. The reading range is up to 5 cm depending on the contactless tag. A regulated supply voltage of 5 Volts is needed. The RS232 serial interface can be connected to COM1/COM2 connector of PC-station or laptop using a cable.

The reading procedure and installation of this card reader is very easy and convenient, just approach the card to the reader and following the installation guide.

It is also available in ACR120 reader module form.

Features

- Full MIFARE® functionality
- Compatible with Mifare® cards, and ISO 14443 cards
- Read and write functionality
- High-speed transactions
- Antenna included
- Serial interfacing, RS232
- Operation LED
- Compact size: 120 X 73 X 20mm
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Support SLE4418/28/32/42 memory cards
- USB interface (on request)
- Built-in contact smart card slots (on request)
- SAM slot (on request)

Technical specification

Interface	RS-232 (Serial)
Supply Voltage	Regulated 5V DC
Operating Distance	>= 50 mm
Supply Current	< 80mA
Operating Temperature	-20 - 85° C
Physical Dimensions	75mm (L) x 60mm (B) x 14mm (H)
Operating Frequency	13.56 MHz
Standards / Certifications	ISO 14443 cards and MIFARE® cards
Operating System Support	Windows 98, Me, NT (serial), 2K and XP, Linux, and MAC OS X

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.6.2 SDK-ACR120 – ACR120 Contactless Smart Card Development Kit

The ACR120 Contactless Smart Card Development Kit enables effective development of customized applications and systems using MIFARE cards, contactless readers, and PCs.

Reflecting ACS expertise in smart card technologies, the development kit is a complete package containing all the vital components required for contactless smart card application development, which is suitable for both beginners and experienced developers.

It is also an ideal training and development tool for those who would like to know more about contactless smart card technologies. Software development companies can use the kit to develop systems specific to their requirements to meet customers' demanding needs or to incorporate various contactless smart card technologies into their current applications.

Package Contents

- 1 x ACR120 Contactless Smart Card Reader
- 1 x ACR38DT DualKey (A key for both physical and logical access control)
- 5 x 1K MIFARE® contactless Cards
- 1 x Combi Card
- Installation CD-ROM (including drivers, source codes, and demo software)
- User Manual

Features

- Read and write ISO14443 cards and MIFARE® cards
- High-speed transactions
- Flexible configurations
- RS232 serial interface to PC with simple command structure
- SDK contains all the vital components required for contactless application development
- SDK designed for both novice and experienced developers

Technical specification

Interface	RS-232 (Serial)
Supply Voltage	Regulated 5V DC
Supply Current	< 80mA
Operating Temperature	-20 - 85° C
Physical Dimensions	75mm (L) x 60mm (B) x 14mm (H)
Operating Frequency	13.56 MHz
Standards / Certifications	ISO 14443 cards and MIFARE® cards

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.7 Physical Access Control
2.7.1 ACM133- Fingerprint Controller Module

The ACM133 fingerprint controller module is a stand-alone, battery-operated lock-controller for physical access control applications. It employs the most advanced fingerprint scanning and recognition technology that can accurately authenticate a user's identity.

The module is specially designed to minimize power consumption and hence extend the battery life.

ACS pays special attention in designing man-machine interfaces that are both intuitive to operate and easy to manufacture. We can work with our partners to customize our design to suit their needs.

System Features

- High-resolution 508 DPI imaging
- Utilizes CMOS active capacitive pixel-sensing technology, resulting in good quality of fingerprint image capture
- Large active sensor size – 12.8 mm x 18.0mm
- Stand-alone, battery-powered operation.
- Low power consumption – can be up to 7000 operations for 4 AA size alkaline batteries.
- Battery-low warning
- Emergency power supplier input – 9V or 12V.
- Intuitive and user-friendly man-machine interaction design with visual and audio cue to prompt and alert users.
- 5V control signal capable of driving a motor or a solenoid for lock-control.
- Audio prompt
- Visual prompt
- Sensor Input and data entry

Security Features

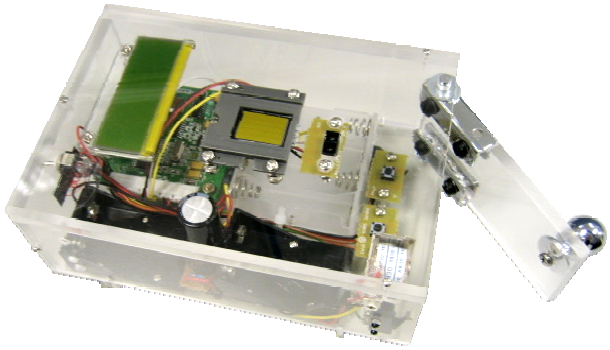
- Capable of implementing multi-level security with Master and General user differentiation.
- Optional keypad entry to implement multi-factor authentication in a high security environment.

General	
Power supply	Battery Power – 4 AA size battery minimum
Emergency Power Supply	9V or 12V D.C.
Active sensor size	12.8 x 18 mm
Array size	256 x 360 pixels
Image resolution	508 DPI
Number of fingerprint template	12 guaranteed; 20 typical
False Acceptance Rate (FAR)	< 0.001 %
False Rejection Rate (FRR)	< 0.6 %
ESD tolerant	+/- 15kV
Control Signal	
Tamper-proof Protection	Protects against unauthorized opening of casing
Physical Dimensions	183.0mm (L) x 88 .0mm(W) x 37.0mm (H)
Weight	Approx. 450g (with battery pack installed)
Wireless connectivity (GSM/GPRS)	
Drive Current	up to 1 A maximum
Drive Voltage	Direct from 6V battery
Operating Condistions	
Temperature	-20° C - 50° C
Humidity	5% - 85%

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.7.2 EVK- ACM133 Evaluation Kit



The EVK-ACM133 evaluation kit, an extension of the ACM133 fingerprint controller module, is a standalone and ready-to-use evaluation kit showcasing the application of physical access control, with the "fingerprint is your key" concept. Without worries of forgetting password or losing keys, users can enjoy the merits of the fingerprint controller and safely protect their assets.

Package Contents

- ACM133 fingerprint controller module
- LCD (65.4mm X 29.1mm, 122 X 16 dot matrix)
- Infrared proximity sensor, for on-application auto-switching
- Built-in buzzer, to provide audible feedback and alert
- Door sensors, to detect door status (open/close)
- Press buttons, for enrolling and deleting fingerprint templates

The evaluation kit is the typical application to show you how ACM133 can be applied to create access control for door locks, safes and vaults, time and attendance control devices, etc. Depending on your application, ACS can provide you with the following options to choose from.

Power Switch	Display
Infrared proximity sensor	LCD (65.4mm X 29.1mm, 122 X 16 dot matrix)
Capacitance proximity sensor	7-segment digits
On/off switch	LEDs

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

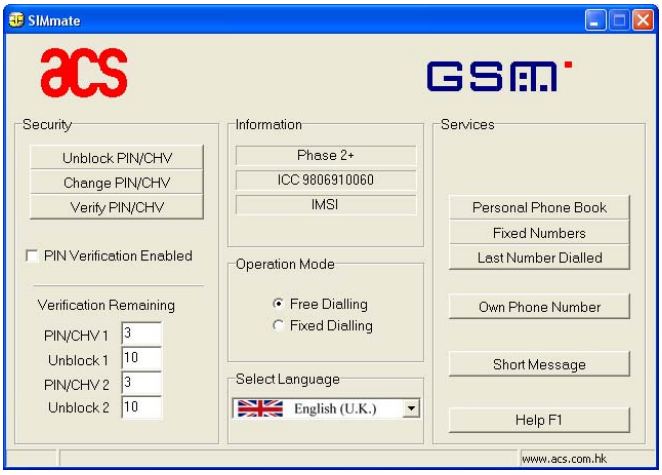
2.8 GSM Management Tools
2.8.1 SIMmate

With SIMmate, you can easily create, edit, and backup phonebook entries and short messages using your PC. You can manage your PIN codes and transfer data from one SIM to another on your desktop or portable computer. This eliminates the hassle of keying in information through the phone's keypad, and at the same time, provides the user with a convenient way to backup phone book and short message information. These data can also be imported into other database/spreadsheet programs, as well as single-click global phone number correction/ internationalization.

You can also use the SIMmate to manage your PIN and PUK codes, obtain SIM information, change dialing modes, etc. This application tool is currently available in English, Simplified and Traditional Chinese, German and Italian.

Package Contents

- ACR38T / ACR30T
- SIMmate CD-ROM



Features

- Edit, read, copy, save, and print phonebooks
- Edit, read, copy, save, and print SMS messages
- Access built-in common short messages (canned messages)
- Manage SIM card PIN codes
- Append global phone numbers
- Supporting languages:
  - Traditional Chinese (Chinese Big 5)
  - Simplified Chinese (Chinese GB)
  - English
  - German
  - Italian

Supported Card Type

- GSM SIM Cards
- SIMmate is compatible with card conforming to GSM 11.11 Phase 2+ standard.

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

System Requirements

- IBM-Compatible Personal Computer with Intel 486 Processor or higher
- Microsoft Windows 98/Me/2000/XP
- Minimum 8MB RAM
- Minimum 5MB free hard disk space
- CD-ROM drive
- Available RS-232 or USB port to match the Reader/Writer's interfaces

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong

Tel: +852 2796 7873
Website: www.acs.com.hk

Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.8.2 SIMmate Online

Manage your GSM SIM information on the Internet

With SIMmate on-line, you can easily create, edit, and backup phonebook entries and short messages using your PC. You can manage your PIN codes, transfer data from one SIM to another on your desktop or portable computer.

SIMmate on-line eliminates the hassle of keying in information through the phone's keypad, and at the same time, provides the user a convenient way to backup phone book and short message information. These data can also be imported into other database/spreadsheet programs, as well as single-click global phone number correction/ internationalization.

Features

- Manage PIN code
- Check SIM code
- Edit, read, copy, save, and print phone book & short message
- Sort phone numbers
- Global phone numbers correction
- Access built-in common short messages
- Languages: English and/or German

System Requirements

- IBM-Compatible Personal Computer with Intel 486 Processor or higher
- Microsoft Windows 98/Me/2000/XP
- Minimum 8MB RAM
- Minimum 5MB free hard disk space
- CD-ROM drive
- Available USB port

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.8.3 SIMC01 - SIMcopier

ACR SIMcopier is a special smart card reader customized for GSM operators. Many GSM operators face high *churn rates*, i.e., subscribers switch telephone operators to enjoy a cheaper handset discount or lower subscription fee. Information inside user's old SIM card (e.g., phone-book and SMS files) is usually lost during the process of switching. Users have to re-enter the data again if they are still available.

ACR SIMcopier is a low cost standalone device that does the job of copying the phone-book and SMS files directly from a SIM card to another *without PC connection*. Because of its low cost, the GSM operator is able to equip every sales outlet with such a device to serve the mobile phone users efficiently.

Features

- ISO7816-1/2/3, CE, FCC
- EMV level 1 certified
- Does not require PC connection
- Low cost standalone device that does the job of copying the phone-book and SMS which was previously done via a PC
- Standalone device
- Three LEDs card status indicators
- There are three LEDs indicators – one for device power indication and the other two for the full size smart card status indications. The two card status LEDs have dual color that differentiate whether the smart card has been powered and also if the smart card is presently communicating with the reader
- Graphic LCD with backlighting
- There is a 122x32 graphics LCD display with backlighting, which can be used to display graphics or up to 4 x 20 alphanumeric characters.
- Real-time clock
- Buzzer
- 16-key keypad
- Supports GSM 11.11 SIM card, which is the Global System for Mobile Communications (GSM) version 11.11 specification
- Copy all phone book records, SMS messages and language preference from source card to destination card
- Short Message Service (SMS) is defined by the GSM 11.11 specification
- Phone book record - Abbreviated Dialling Number (AND) is defined by the GSM 11.11 specification
- Supports International language -- English [other languages are available upon request]
- Password protection
- SIM space detection
- Warning message is shown when the space of destination card is not enough
- Able to delete all phone book records and SMS messages and display the total numbers of free phone book records and SMS messages.
- The package includes a SIM card holder (Convert the SIM card format to smart card format)

Technical specification

Supply Voltage	Regulated 5V DC
Supply Current	< 100mA (without smart card)
Physical Dimensions	211mm (L) x100mm (W) x 59mm (H)
CLK Frequency	3.68 / 4 MHz
Standards / Certifications	ISO 7816-1/2/3 (interface), PC/SC, CE, FCC, and EMV

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.9 Others
2.9.1 ACS Smart Card Connector

ACS-L-01-D (Landing)

ACS-SIM-P-01 (For SIM card)

ACS-L-01-S (Landing, SMT)

ACS-SIM-M-S
(Metal Switch Type)

ACS is launching a versatile family of smart card connectors designed to meet today's requirements for smart cards used in a variety of terminal devices. Our smart card connectors are available in various board mount and surface mount versions.

These connectors are supplied in 6, 8 and 16 positions with card detection switches. They are ideal for use in a growing variety of smart card equipment including: POS, payment and health terminals, ATM, electronic wallets, mobile and pay telephones, ID/access control, and computers.

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.9.2 Other Smart Cards

ACS also offers a variety of other smart cards that may be used with their various smart card readers/writers.

Memory Cards

- SLE 4418/SLE4428 Intelligent 1Kbyte EEPROM
- SLE 4432/SLE4442 Intelligent 256-Byte EEPRROM
- SLE 5536/SLE 5536E Intelligent 221-bits EEPROM counter for 20000 units with security logic and high security authentication

Contactless Cards

- MIFARE® 1 Kbyte EEPROM
- MIFARE® 4 Kbytes EEPROM

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

2.9.3 Rewritable Printers

The rewritable printer allows convenient printing and erasing of artwork on smart cards. It supports high-speed printing and is suitable for use with various smart cards in ISO standards

Technical specification

Printing Method	Thermorewrite printing and erasing process
Erasing Method	Patented CLEARjet erase system - Clearjet
Encoding	Contact or contactless chipcard as well as magnetic card interface can be integrated
Print Head Resolution	600 x 200 dpi resolution Optional: 600 x 300 dpi resolution
Print and Erase System	Rotating thermal print head system patented by CLEARjet
Printing Speed	Max. 60mm / sec
Print / Erase Cycle	Less than 2 seconds
Print	Monochrome, greyscale, full graphic
Fonts	Resident: Arial in 3 sizes True Type fonts available via Windows driver
Communication Interface	1 x USB, 2 x RS232 serial 9600 and 38400 baud bi-directional
Printer Drivers	Available for Win95, Win98 and WinNT
Power Source	ISO - 90-240V AC, 50/60Hz; OEM - 24V DC, 3A
Power Consumption	ISO – 70 W; OEM – 15 W
Dimensions	ISO – 158mm x 175mm x 319mm; OEM – 120mm x 130mm x 165mm
Weight	ISO – 4.5 kg; OEM – 1.5 kg
Card Specifications	ISO 7810 format PVC cards coated with CLEARjet foil ISO 7810 standard PVC card ISO mag stripe cards ISO contact IC cards ISO contactless IC cards
Operating Temperature	15 - 30 ° C
Operating Humidity	20 – 80 %
Storage Temperature	5 – 40 ° C
Storage Humidity	10 – 90 %

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873 Fax: +852 2796 1286
Website: www.acs.com.hk Email: info@acs.com.hk

© Advanced Card Systems Ltd.

3. ACS services

3.1 Product Customization

ACS offers product customization as well as new product development services to meet specific customers requirements. With our experienced engineering team, we have the capability to design and develop the new products that will make you stand out against competitors. We are dedicated to work with you to provide solutions to suit your needs and applications.

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.

3.2 Consultancy and Training

ACS offers consultancy and training services. Every once in a while, we may invite our customers to participate in a training session conducted in our offices. Likewise, we are willing to conduct specialized training for interested parties.

Please email us at info@acs.com.hk

3 Days smart card technology, application & system design and implementation training

Objective
This training targets solution and integration houses with people who have strong IT capabilities but have not been in the smart card solution business and have not been formally trained.

Trainee profile
This training is ideal for system design engineers and software and hardware engineers who will be involved in the smart card solution implementation. It is also suitable for project managers who need to manage a smart card based project. Senior management and sales personnel may sit through the training to have an idea on what could be involved in a smart card business before jumping into it. It is also useful for sales and marketing people dealing with products and systems related to the smart card industry. For system design, smart card project manager, engineers and programmers, day 1 of the training serves as a foundation and overview, and days 2 and 3 of the training strengthens their capabilities of doing their job in smart card technology.

Instructor profile
Tan Keng Boon has been in the smart card industry for 10 years - 5 years in Gemplus Technologies Asia as Technical Manager, 2 years as a smart card application consultant, 2 years in De La Rue Card Systems (the predecessor of Oberthur Card Systems), and then in ACS. Over the past 10 years he has trained thousands of professionals in Asia Pacific, and has been a consultant to a number of card manufacturers, payphone manufacturers, ATM manufacturers and solution houses. He was involved in a number of banking smart card projects in Singapore, Indonesia, China, Thailand and Taiwan.

Training content

- Smart Card Technical Introduction
- Applying Cryptography In Smart Card Applications
- Memory Card Overview
- MCU Smart Card Chip Operating System (COS)
- Application Standard MCU Smart Cards Overview
- Smart Card Platforms
- PC/SC Smart Card Reader
- Disposable Electronic Purse - EuroChip / SLE-4436 and T2G
- Case Study: Disposable Electronic Purse / Electronic Gift Voucher Application System
- Secured Memory Card - SLE4442
- Secured Memory Card - SLE4428
- Case Study - Loyalty Application Using SLE 4442 / 4428
- Case Study - Organization ID Card
- Electronic Purse Application System Design
- EMV Smart Debit / Credit Smart Card
- Key Management System
- PC/SC Smart Card Reader
- GSM SIM ToolKit For Value-Added Services / Mobile Commerce

Advanced Card Systems Ltd.
Unit 2910-2913, 29/F, The Center
99 Queen's Road Central, Hong Kong
Tel: +852 2796 7873
Website: www.acs.com.hk
Fax: +852 2796 1286
Email: info@acs.com.hk

© Advanced Card Systems Ltd.